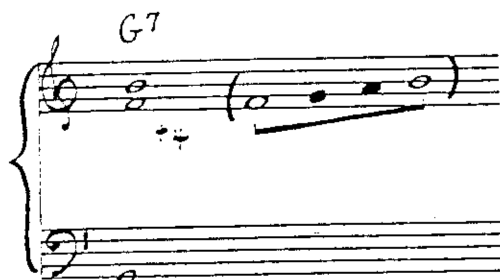
HARMONY 3

by Barrie Nettles

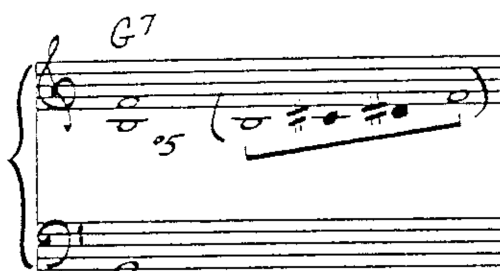
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SUBSTITUTE DOMINANT CHORDS

The characteristic of dominant chord sound can be attributed to the tritone which exists between the third and seventh of the dominant chord:

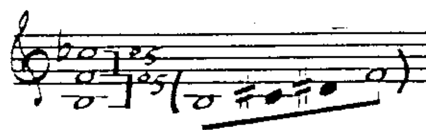


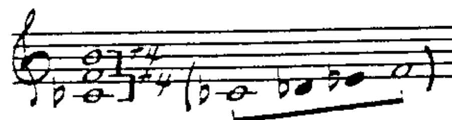
The quality of the tritone remains unaffected even if inverted:



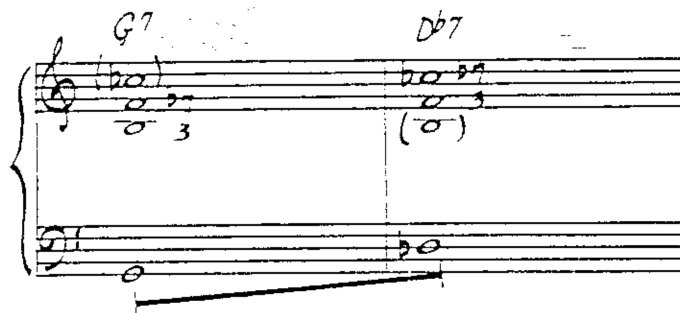
Therefore, the above tritone may be notated as either an aug. 4th or a dim. 5th (as in the above two examples). Thus, the same tritone may be notated enharmonically to produce another +4th tritone which inverts to another °5th tritone. Though the tritones involved appear different, they all contain the same sound (**tritone = 3 whole steps**):







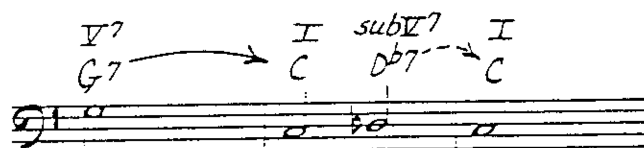
Since the dominant chord quality requires the tritone to represent chord tones three and seven, the root must be present for a complete chord sound:



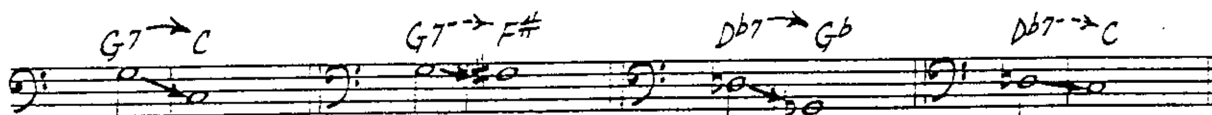
The resulting two dominant chords contain the same tritone and may therefore function similarly. The context in which either chord appears determines the function.

The dominant chord and its **substitute dominant** chord share the same tritone and their roots are a tritone apart. (These chords are also known as **"tritone substitute"** chords.)

The substitute dominant for V7/I is subV7/I. Just as the expected resolution of V7/I resolving to I requires an arrow (showing the actual resolution), the resolution of the subV7 has a special analysis, a dotted arrow.



A SOLID ARROW INDICATES DOMINANT RESOLUTION DOWN A PERFECT FIFTH; A DOTTED ARROW INDICATES DOMINANT RESOLUTION DOWN A HALF STEP.



The primary dominant and secondary dominants are chords which have an expected resolution down a perfect fifth. The expected resolution for substitute dominants is down a half step. The substitute secondary dominant chords are subV7/II, subV7/IV, subV7/V:

C: subV7/II Eb7 → II-7 D-7 subV7/IV Gb7 → IVmaj7 Fmaj7 subV7/V Ab7 → V7 G7

One characteristic of substitute dominant chords is that their roots are <u>not diatonic</u>. (The primary and secondary dominant chords have <u>diatonic</u> roots.) IV7 also has a diatonic root. It rarely sounds as though its function will be as a substitute dominant (though it may resolve down a half step to III-7).

bVII7's function as a modal interchange chord is more common than the possibility of a subV7/VI function.

In unusual situations (most often dictated by harmonic rhythm) subV7/III and subV7/VI may occur, but V7/IV is <u>never subV7/VII.</u>

Substitute dominant motion is also common to contemporary minor key chord progressions:

RELATED II-7 CHORDS - SUBSTITUTE DOMINANTS

Any dominant chord may be preceded by its related II-7. The related II-7 chords of the secondary dominants are diatonic except the related II-7 of V7/III, which has a non-diatonic root. However, the related II-7's of substitute dominants are non-diatonically rooted. Therefore, since the related II-7 chords of the substitute dominants cannot have dual function, they will be analyzed in terms of their relationships with substitute dominant chords; the ____ relationship.

C: Ab-7 — subV7 Db7 ---> Imaj7 Cmaj7

Bb-7 — subV7/II Eb7 ---> II-7 D-7

Db-7 — subV7/IV Gb7 ---> IVmaj7 Fmaj7

Eb-7 — subV7/V Ab7 ---> V7 G7

With the inclusion of the related II-7 chords for both primary or secondary dominants and their substitute dominants, a four-way chordal relationship can exist:

II-7 D-7 — V7 G7 → I C

Ab-7 — subV7 Db7 ---> I C

II-7 D-7 — subV7 Db-7 ---> I C

Ab-7 — V7 G7 → I C

[interchange]

The related II-7's of the primary or secondary dominants may progress normally:

Imaj7 Cmaj7 — G-7 V7/IV C7 → IV6 F6 — III-7 E-7 V7/II A7 → II-7 D-7 — VI-7 A-7 V7/V D7 → V7(sus4) G7(sus4) — II-7 D-7 V7 G7 →

The related II-7's of the substitute dominants may progress normally:

Imaj7 subV7/III IV6 subV7/II II-7 subV7/V V7(sus4) subV7
Cmaj7 Db-7 Gb7 F6 Bb-7 Eb7 D-7 Eb-7 Ab7 G7(sus4) Ab-7 Db7

OR, any of the above II-7 chords may progress down a half step to the substitute for its dominant chord. Since the root motion from the II-7 to the dominant will be down a half step, the analysis symbol used is a dotted bracket.

Imaj7 subV7/III IV6 III-7 subV7/II II-7 VI-7 subV7/V V7(sus4) II-7 subV7
Cmaj7 G-7 Gb7 F6 E-7 Eb7 D-7 A-7 Ab7 G7(sus4) D-7 Db7

OR:

Imaj7 V7/III IV6 V7/II II-7 V7/V V7(sus4) V7
Cmaj7 Db-7 C7 F6 Bb-7 A7 D-7 Eb-7 D7 G7(sus4) Ab-7 G7

A solid arrow or bracket indicates root motion down a perfect fifth:

A dotted arrow or bracket indicates root motion down a half step:

AVAILABLE TENSIONS-SUBSTITUTE DOMINANTS

Inasmuch as substitute dominant chords are not diatonic structures, their extended structures do not require a diatonic orientation. The tensions available on any substitute dominant are the pitches a major ninth above any chord tone (whether diatonic to the key or not).

C: subV7 D♭7 — subV7/II E♭7 — subV7/IV G♭7 — subV7/V A♭7

In all cases, it should be noted that the tension #11 on a substitute dominant represents the root of the original chord of derivation (the primary dominant or secondary dominant).

All substitute dominant chords have available tensions 9, #11, and 13.

If the extended structure of the substitute dominant is supported by the root of the respective original primary or secondary dominant chord, an alternative to the normal available tensions for the primary or secondary dominant chords may be found:

C: subV7 D♭7/G bass — subV7/II E♭7/A bass — subV7/IV G♭7/C bass — subV7/V A♭7/D bass

V7 — V7/II — V7/IV — V7/V

V7/I normally has available tensions 9 and 13; it may optionally use tensions ♭9, ♯9, ♭5, and ♭13:

Any dominant chord with the above alterations (altered 9, 5, 13) is notated as "altered", abbreviated as **(alt)**. (Although not universally used, this abbreviation is generally understood.)

Although V7/IV normally has available tensions 9 and 13, it may optionally use the altered tensions:

V7/V normally has available tensions 9 (alternatively, ♭9, ♯9) and 13; it may optionally use the remaining altered tensions:

V7/II normally has available tensions 9 (alternatively, $^{b}9$, $^{\#}9$) and $^{b}13$; it may optionally use the remaining altered tensions:

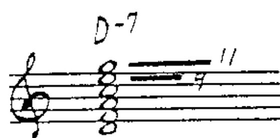
If the option of altered tensions is used, the chord symbol MUST reflect that option.

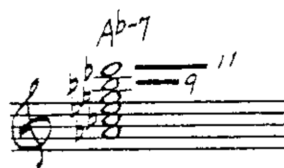
The available tensions for the related II-7 chords of substitute dominants are drawn from the key in which the chord is the diatonic II-7:

Though the primary and secondary dominants and their respective substitute dominants are substitutes for each other, the same is not true for the related II-7 chords. By comparing the available pitches for both kinds of II-7 chords, it can be seen that totally different available note options are produced:

D-7 as related II-7 of V7(G7)

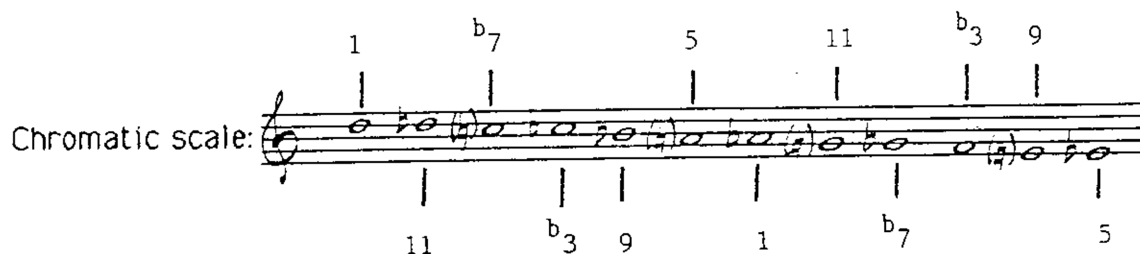
A^b-7 as related II-7 of subV7(D^b7)





Available to D-7:

Chromatic scale:



Available to A^b-7:

****

Summary of available tensions: primary dominant, secondary dominants, substitute dominants and related II-7 chords.

Chord:	Available tensions:	Optional tensions:
V7/I	9, 13	(alt)
subV7/I	9, ♯11, 13	
V7/II	9, ♭13	♭9, ♯9, ♭13 or (alt)
subV7/II	9, ♯11, 13	
V7/III	♭9, ♯9, ♭13	(alt)
V7/IV	9, 13	(alt)
subV7/IV	9, ♯11, 13	
V7/V	9, 13	♭9, ♯9, 13 or (alt)
V7/VI	♭9, ♯9, ♭13	(alt)

Related II-7:		
of V7/I	9, 11	
of V7/II	11 (as III-7)	9, 11 (as related II-7)
of V7/III	9, 11	11, ♭13 [as ♯IV-7(♭5)]
of V7/IV	9, 11	
of V7/V	9, 11	
of V7/VI Se Diatonico	11, ♭13 [as VII-7(♭5)]	9, 11 (as related II-7)
of all subV7's	9, 11	

EXTENDED SUBSTITUTE DOMINANTS

Extended dominants are dominant chords which are placed at strong stress points, or within a pattern of dominant resolution following the cycle of fifths with an extended dominant as the starting point for the pattern.

The same characteristics apply when substitute dominant chords are involved. The root motion during extended dominant motion follows the cycle of fifths; the root motion during extended substitute dominant motion is chromatic:

(III) subV7 Imaj7 (V7/III)
D7 - - - → Db7 - - - → C7 - - - → Cb7 - - - → Bbmaj7 A7 →

Chromatic

(bVII) V7 Imaj7 (V7/III)
Ab7 - - - → G7 - - - → Gb7 - - - → F7 → Bbmaj7 A7 →

Chromatic

In the first four measures of the above examples, every other chord represents an extended substitute dominant chord, while the remaining chords are extended dominants though they resolve by half step:

(III) Imaj7 (V7/III)
D7 → G7 → C7 → F7 → Bbmaj7 A7 →

[The same example using no substitute dominants.]

The decision to hear an extended dominant versus an extended substitute dominant is made by the listener based on the function of the dominant in the key. If the root of the first dominant chord in the pattern is diatonic, it will sound like an extended dominant:

Imaj7 VI-7 II-7 (V7/III) [Pattern begins] V7
Gmaj7 E-7 A-7 F#7 → B7 → E7 → A7 → D7 →

Diatonic

If the root of the first dominant chord in the pattern is not diatonic, it will sound like an extended substitute dominant:

Imaj7 VI-7 II-7 (V7/III) [Pattern begins]
Gmaj7 E-7 A-7 F#7 ---> F7 ---> E7 ---> Eb7 ---> Ab7 --->

Non-diatonic

It should be observed that the complexities resulting from the inclusion of substitute dominant chords within a progression make that progression very difficult to hear. This, in turn, allows for more freedom in the choice of usable tensions.

Generally,

1) if movement from an extended dominant is down a perfect fifth, the following dominant will sound like another extended dominant;

2) if movement from an extended dominant is down a half step, the following dominant will sound like an extended substitute dominant;

3) if movement from an extended substitute dominant is down a perfect fifth the following dominant will sound like another substitute dominant;

4) if movement from an extended substitute dominant is down a half step, the following dominant will sound like an extended dominant:

The available tensions for extended substitute dominant chords are 9, #11, 13 (the same as all subV7's).

The extended substitute dominant may be interpolated prior to the resolution of an extended dominant:

(III) D7 Ab7 G7 Db7 C7 Gb7 V7 F7

subV7 Cb7 Imaj7 Bbmaj7

It is more common for the substitute dominant to follow the extended dominant (as above) than for the substitute to appear first.

Related II-7 chords may precede their respective dominant chords (either ___ or - - -):

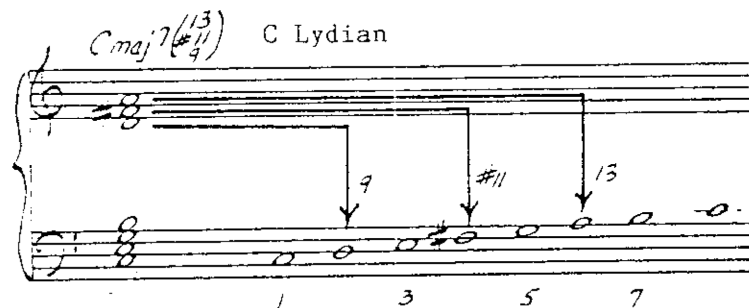
A-7 (III) D7 Eb-7 Ab7 D-7 G7 Ab-7 Db7 Db-7 C7

G-7 Gb7 Gb-7 V7 F7 C-7 subV7 Cb7 Bbmaj7

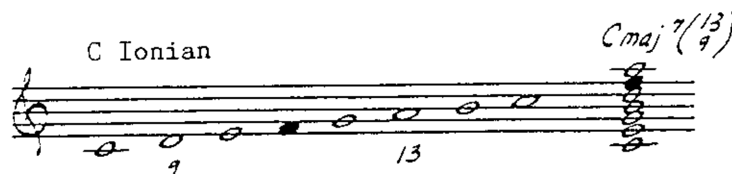
As is the case for all extended dominant motion, harmonic rhythm will be increased with the inclusion of related II-7 chords. Further, a II-7 may itself be the target chord of resolution.

DIATONIC CHORD SCALES

CHORD SCALES are used to identify a chord's available melodic and harmonic pitches. Chord scales may be described as extended chord structures, with tensions and other non-chord tones displaced down an octave to create a scale.

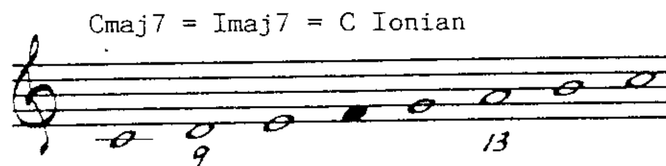


The above extended maj7 chord may be identified either as Cmaj7(#11) or as a Lydian chord scale. Modal terminology (Lydian) is used to identify the interval relationships between adjacent pitches. Available tensions are those non-chord tones which are a whole step above a chord tone (a major ninth reduced by an octave).



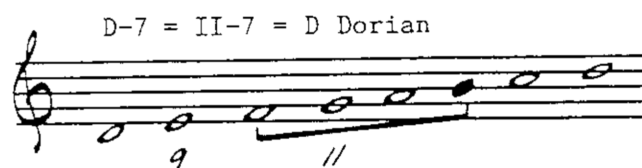
The modal name for the chord scale above is C Ionian. The chord symbol would be Cmaj7. Both the chord symbol and the chord scale refer to the same structure, but the chord scale is more complete. The scale shows all the available melodic pitches including the fourth degree (F), which is available as a scale approach note. AVOID NOTES are avoided harmonically but available melodically. (Note: Avoid notes are indicated by filled in note heads, while the available chord tones and tensions are written as whole notes. Also, note that the fourth degree of any Ionian scale is an avoid note.)

DIATONIC CHORDS USE DIATONIC CHORD SCALES. Available tensions will be a whole step above a chord tone. Other pitches (a half step above a chord tone) will be avoid notes. (All examples for this topic are demonstrated in C major.)
The **I** chord uses an **Ionian** chord scale; the fourth degree is avoided:

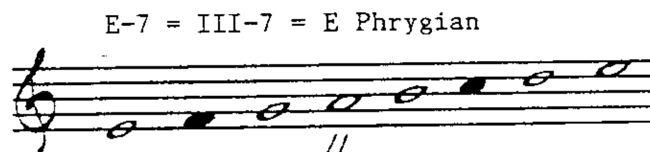


The **II-7** chord uses a **Dorian** chord scale. The sixth degree is avoided, even though it is a whole step above the 5th, because it creates a tritone with the 3rd of the chord. This suggests a dominant quality rather than subdominant.*

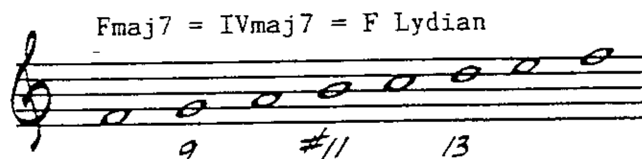




The **III-7** chord uses a **Phrygian** chord scale; the second and sixth degrees are avoided:



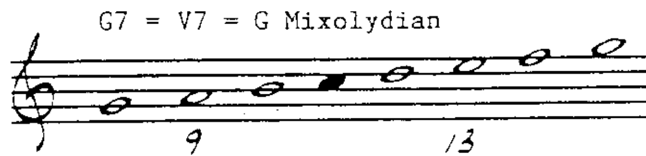
The **IV** chord uses a **Lydian** chord scale; there are no avoid notes:



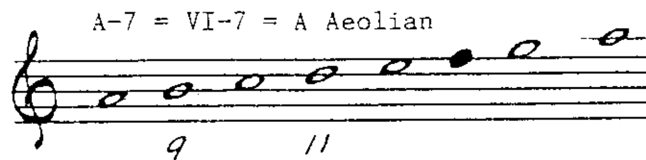


*The harmonically avoided 6th degree in the Dorian scale is the only exception to the availability of a non-chord tone a whole step above a chord tone.

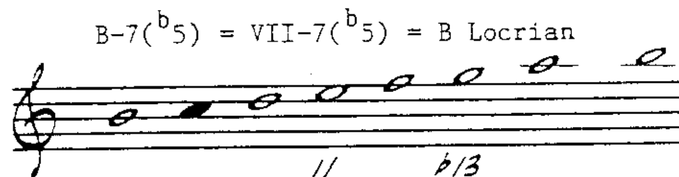
The **V7** chord uses a **Mixolydian** chord scale; the 4th degree is avoided:



The **VI-7** chord uses an **Aeolian** scale; the 6th degree is avoided:



The **VII-7(b5)** chord uses a **Locrian** scale; the 2nd degree is avoided:



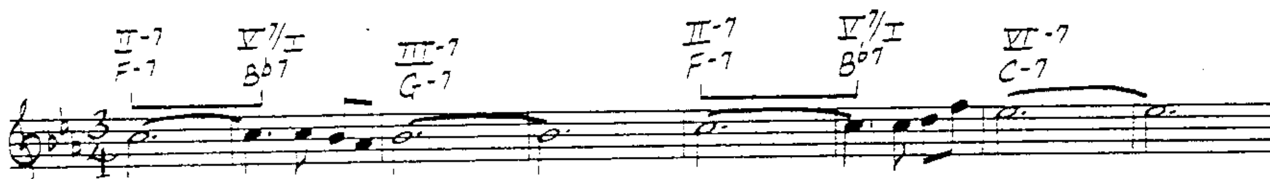
For diatonic chord progressions, available tensions and other non-chord tones will be diatonic. Hence, the chord scales will be diatonic:

VII-7(b5) B-7(b5) — 11, b13
III-7 E-7 — 11
II-7 D-7 — 9, 11
V7/I G7 — 9, 13

VI-7 A-7 — 9, 11
IVmaj7 Fmaj7 — 9, #11, 13
Imaj7 Cmaj7 — 9, 13

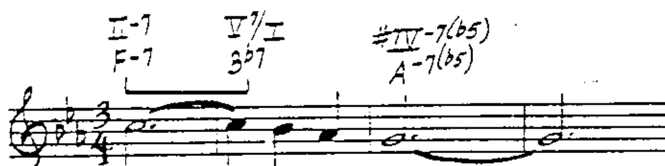
DECEPTIVE RESOLUTIONS - V7/I

Two of the standard deceptive resolutions of the V7 chord have been seen in diatonic harmonic analysis. V7 of I resolving to the **III-7** or **VI-7** (both tonic substitute chords) are common examples of deceptive resolution.



These deceptive resolutions are so common that they do not require a deceptive resolution analysis (the use of parentheses). The justification for the above harmonic motion is diatonic progressing to diatonic. The following deceptive resolutions of the V7/I chord have the same basis and are analyzed without parentheses, though the chords involved are non-diatonic.

1. V7/I may resolve deceptively to **#IV-7(b5)**: o.K.



2. V7/I may resolve deceptively to **bIIImaj7**:



V7/I may also resolve deceptively to the other maj7 modal interchange chords.

V7/I to ᵇIImaj7:

II-7 F-7 V7/I Bb7 bII maj7 Fbmaj7

V7/I to ᵇVImaj7:

II-7 F-7 V7/I Bb7 bVI maj7 Cbmaj7

Less often, V7/I may deceptively resolve to ᵇVIImaj7:

II-7 F-7 V7/I Bb7 bVII maj7 Dbmaj7

When V7/I resolves deceptively to any of the above chords, it most often occurs at a melodic cadence and sounds as though the progression will eventually move to tonic.

The strongest melodic pitches at cadence points are degrees 1 and 5 of the key. These two diatonic notes have the most "final" sound melodically:

7 1 2 1

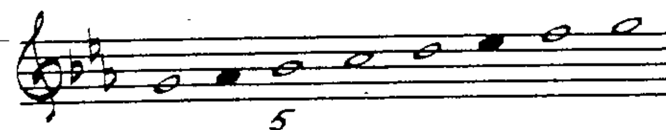
4 5 6 5

An examination of the available pitches for III-7, VI-7, #IV-7(^{b}5), ^{b}IIImaj7, ^{b}IImaj7, ^{b}VImaj7, and ^{b}VIImaj7 shows each deceptive resolution of V7/I to have scale degree 1 or 5, or both, available.

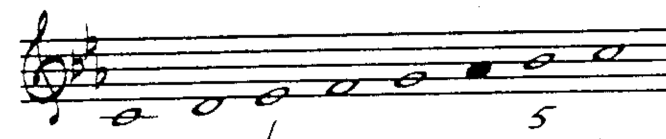
Imaj7



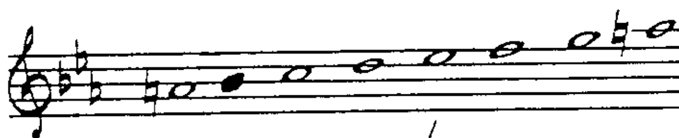
III-7



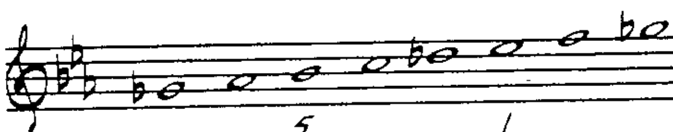
VI-7



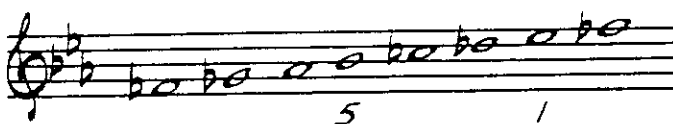
#IV-7(^{b}5)



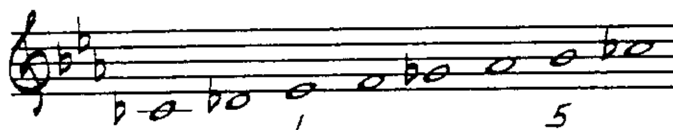
^{b}IIImaj7



^{b}IImaj7



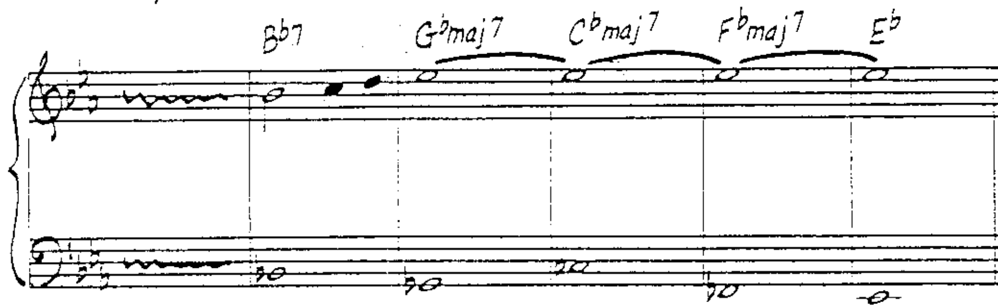
^{b}VImaj7



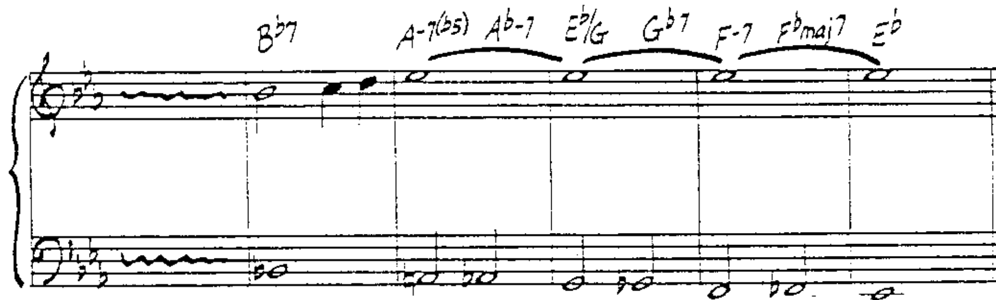
^{b}VIImaj7



When V7/I resolves deceptively to a maj7th chord, the progression often follows the cycle of fifths to return to tonic:



When V7/I resolves deceptively to #IV-7(♭5), the progression often continues with chromatically descending motion to the tonic:

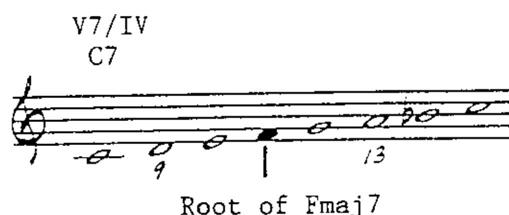


V7/I resolving deceptively to III-7 or VI-7 most often occurs in progressions which are strictly diatonic.

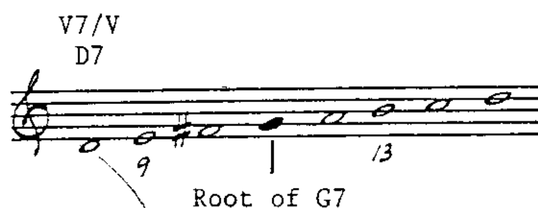
CHORD SCALES – DOMINANT CHORDS

Chord scales for secondary dominants reflect their expected diatonic resolutions. All secondary dominants are expected to resolve down a perfect fifth. The root of the expected resolution chord will be the fourth degree of the chord scale. The dominant chord scale which contains an avoided fourth degree is Mixolydian, so all **secondary dominant** chord scales are some form of **Mixolydian**.

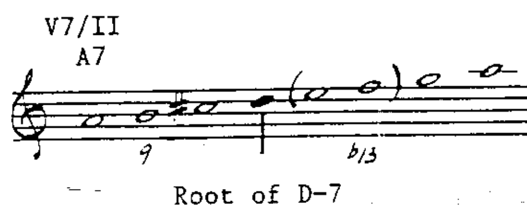
The chord scale used for **V7/IV** is **Mixolydian**; the 4th degree (the root of the expected resolution chord) is avoided:



The chord scale used for **V7/V** is **Mixolydian**; as above, the 4th degree is avoided:

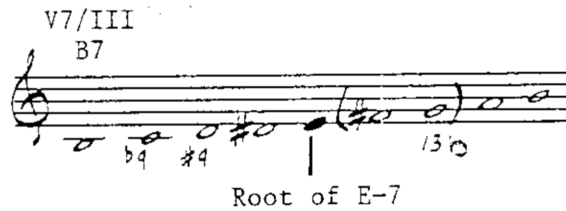


The chord scale used for **V7/II** is **Mixolydian ♭13**; the fourth degree is avoided and there is a **conditional avoid note**. Though ♭13 is an exception to the "major-ninth-above-a-chord tone" rule (and is therefore a half step above a chord tone), it and the 5th may not normally appear simultaneously together. Conditional avoid notes are both enclosed in parentheses:

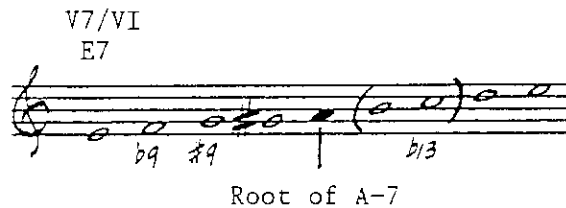


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The chord scale used for **V7/III** is **Mixolydian b9 (optionally #9), b13**; the 4th degree is avoided, and 5 and b13 are conditional avoid notes:

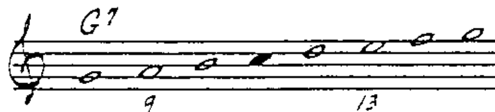


The chord scale used for **V7/VI** is **Mixolydian b9 (optionally #9), b13**; the 4th degree is avoided and 5 and b13 are conditional avoid notes:

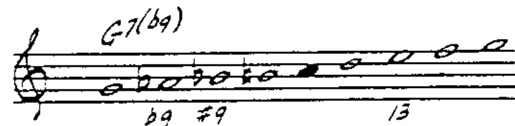


There are optional chord scales for the primary and secondary dominant chords. In addition to the above chord scales, any secondary dominant chord and the primary dominant chord may have added alterations:

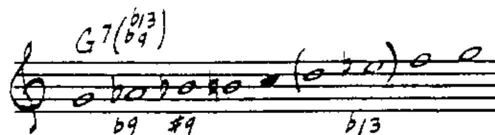
V7 (Mixolydian)



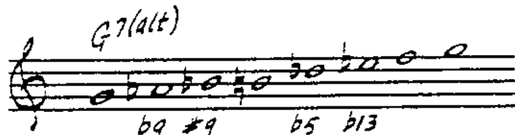
V7(b9)
(Mixolydian b9, #9)



V7(b9, b13) (Mixolydian b9, #9, b13)



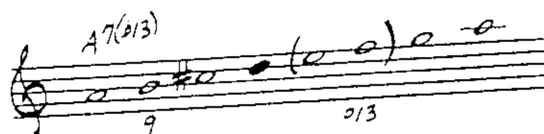
V7(alt) (altered)



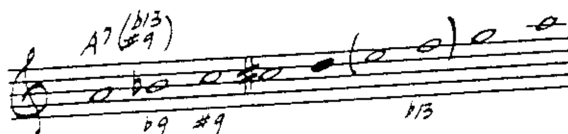
V7/IV and **V7/V** may utilize any of the above alterations also.

V7/II may use any of the following chord scales:

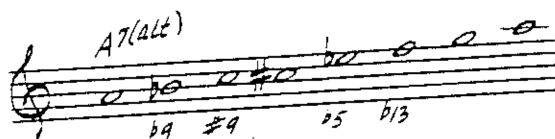
V7(b13)/II (Mixolydian b13)



V7(#9, b13)/II (Mixolydian b9, #9, b13)



V7(alt)/II (altered)

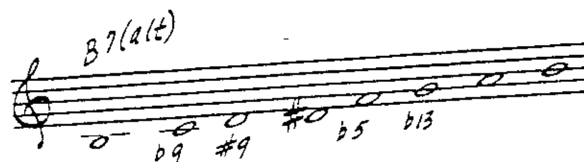


V7/III and V7/VI may be either **Mixolydian b9, #9, b13** or **altered:**

V7(b9, b13)/III (Mixolydian b9, #9, b13)



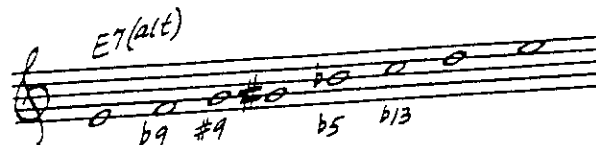
V7(alt)/III (altered)



V7(b9, b13)/VI (Mixolydian b9, #9, b13)



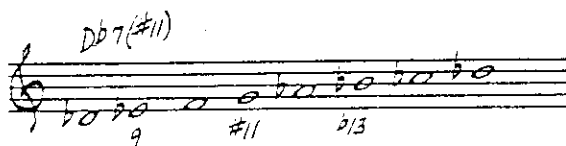
V7(alt)/VI (altered)



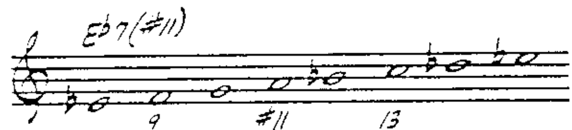
As a general rule, all chords with an expected resolution <u>down</u> a <u>perfect fifth</u> use a <u>Mixolydian scale</u> (with or without alterations) <u>or</u> an <u>altered scale</u>. Any dominant chord <u>not</u> expected to resolve <u>down</u> a <u>perfect fifth</u> uses a <u>Lydian b7 scale</u>. This distinction is the reason for <u>not</u> using the term "Mixolydian #4".

The Lydian ^{b}7 chord scale is used for **all substitute dominant chords** (expected resolution down a half step), **^{b}VII7** (expected resolution up a whole step), IV7 in a major key context (expected resolution down a perfect fourth), and **extended substitute dominant chords** (also expected to resolve down a half step).

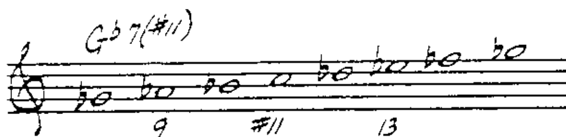
subV7 (Lydian ^{b}7)



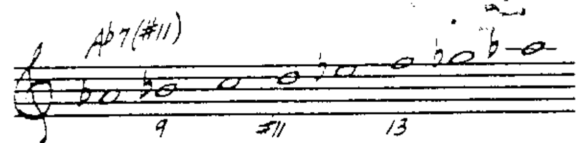
subV7/II (Lydian ^{b}7)



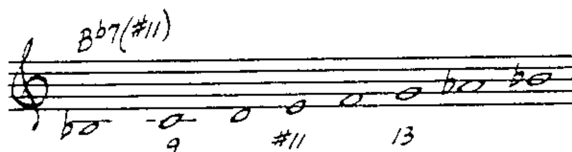
subV7/IV (Lydian ^{b}7)



subV7/V (Lydian ^{b}7)



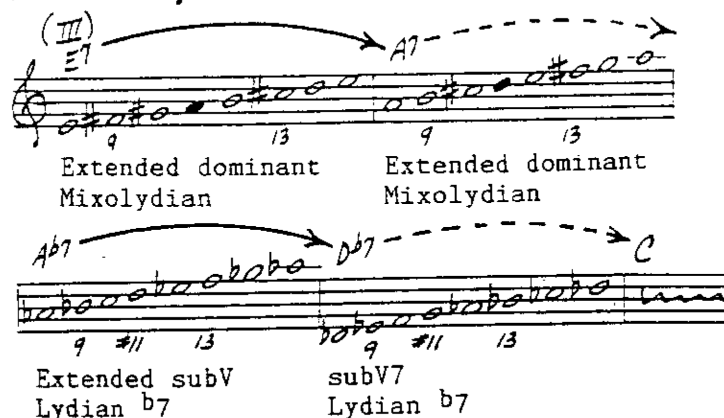
^{b}VII7 (Lydian ^{b}7)



IV7 (Lydian ^{b}7)



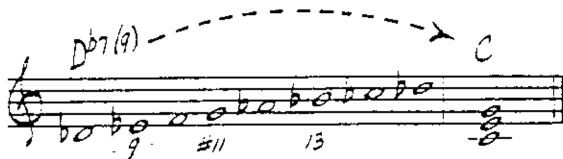
All extended subV7's (Lydian ^{b}7)



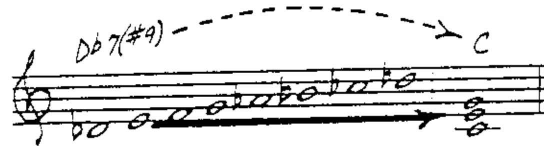
The chord scale used for **extended dominant chords** is the same as that used for V7/V (expected resolution down a perfect fifth): **Mixolydian.**

Though alterations are possible to all forms of Mixolydian scales, the only alterations normally available to the Lydian ♭7 scale occur on the substitute dominants of I, IV, and V. Since those chords have an expected resolution to a <u>major</u> chord, the major third of the chord of resolution may occur in the **Lydian ♭7 (♯9)** chord scale as an alternative. Although infrequent, ♯9 on a Lydian ♭7 chord is more likely to be found on sub V7/I:

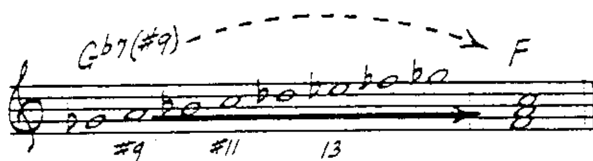
subV7 (Lydian ♭7) to Imaj7



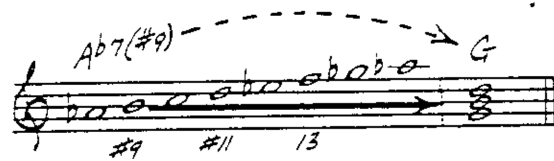
subV7(♯9)/I [Lydian ♭7(♯9)] to Imaj7



subV7(♯9)/IV [Lydian ♭7(♯9)]



subV7(♯9)/V [Lydian ♭7(♯9)]



Though ♭9 and ♯9 may normally coexist, ♭9 is <u>not</u> available in the above alterations to the Lydian ♭7 scale.



DIMINISHED CHORD PATTERNS

Diminished seventh chords are most often found in major keys as linking chords between neighboring diatonic chords, or as approach chords to diatonic chords. The most common patterns for these diminished seventh chords are:

#I°7 approaching II-7 or passing to II-7 from I(maj7)

#II°7 approaching III-7 or passing to III-7 from II-7

#IV°7 approaching V7 or passing to V7 from IV(maj7)

♯V°7 approaching VI-7 or passing to VI-7 from V7

bIII°7 approaching II-7 or passing to II-7 from III-7

bVI°7 approaching V7 or passing to V7 from VI-7

Imaj7 I°7 I6

I°7 as an auxiliary to the tonic [I(maj7)]

V7 V°7 V7

V°7 as an auxiliary to the dominant (V7)

These examples of root motion can be used to categorize the three different types of diminished chords:

1) The ascending diminished seventh chords have root motion up a half step from non-diatonic to diatonic.

2) The descending diminished seventh chords have root motion down a half step from non-diatonic to diatonic.

3) The auxiliary diminished seventh chords have a common root with the tonic or dominant chord respectively.

All diminished seventh chords contain two tritone intervals. Because of these tritones, diminished chords are extremely unstable, and have a clear tendency or "need" to resolve. Additionally, all diminished seventh chords contain non-diatonic pitches; the ascending and descending diminished seventh chords have roots which are not in the key. **ALL DIMINISHED SEVENTH CHORDS HAVE A VERY STRONG DEMAND FOR RESOLUTION.** In most cases, the expected resolution is to a neighboring diatonic chord or diatonically rooted chord.

The ascending diminished seventh chords are derived from the secondary dominants of their target chords and have smooth voice leading characteristics.

#I°7 can be seen as an inverted V7(^{b}9)/II:

C: Cmaj7 A7(b9) #I°7 D-7

#II°7 is derived from an inverted V7(^{b}9)/III:

C: Cmaj7 C#°7 D-7 B7(b9) #II°7 E-7

#IV°7 is derived from an inverted V7(b9)/V:

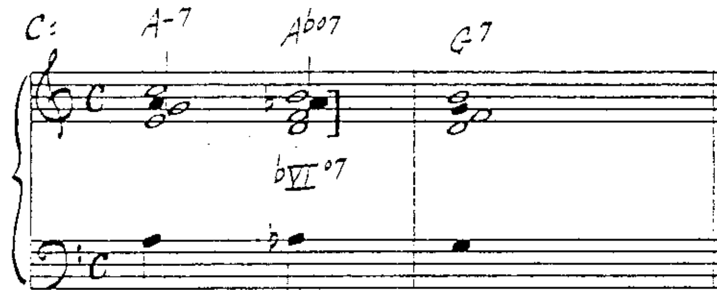
#V°7 is derived from an inverted V7(b9)/VI:

The descending diminished seventh chords are not derived from secondary dominant function since neither contains the tritone of the expected resolution chord's dominant. These two diminished chords are derived from chromatic voice leading.

bIII°7 is expected to resolve to II-7:

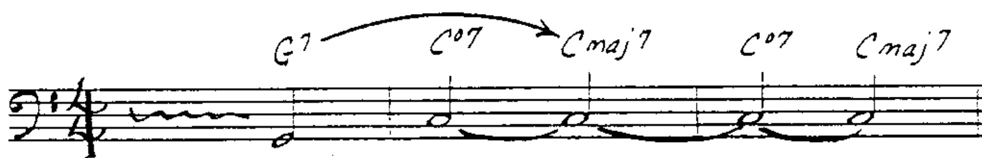
Note that bIII°7 and #II°7 are enharmonically the same chords but the expected resolutions are different; the context in which they appear determines the function.

Similarly, bVI°7 is expected to resolve to V7 (and is enharmonically the same as #V°7):



The tonic and dominant chords of the key may be approached by their respective auxilary diminished seventh chords (I°7 and V°7). Like the descending diminished chords, the auxilary diminished seventh chords are derived from chromatic voice leading and not dominant function. They are found either delaying the resolution to the target chord or creating harmonic motion in a relatively static situation.

I°7 is the auxiliary to the tonic chord:

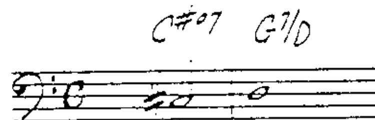


V°7 is the auxiliary to the dominant chord:

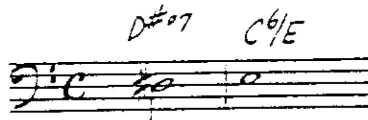


Unlike dominant chords which have a potential for deceptive resolution, diminished seventh chords have an absolute expectation for resolution. **IT IS RARE FOR A °7TH CHORD TO HAVE A DECEPTIVE RESOLUTION.** However, the ascending and descending diminished chords do have alternate chords of resolution. If an alternate resolution does occur, the chromatic root motion is still retained.

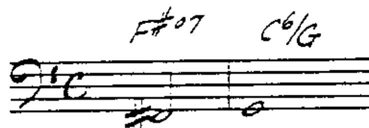
*I°7 has an expected resolution to II-7 and an alternate resolution to II-7's related dominant: the V7 chord with its 5th in the bass:



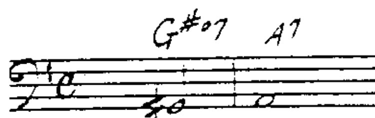
*II°7 has an expected resolution to the tonic III-7 chord and an alternate resolution to the tonic I chord with its 3rd in the bass:



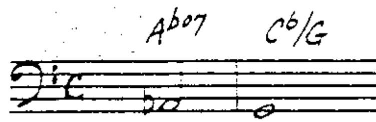
*IV°7 has an expected resolution to the dominant chord and an alternate resolution to the tonic I chord with its 5th in the bass:



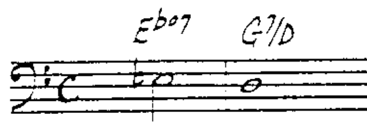
*V°7 has an expected resolution to VI-7 and an alternate resolution to the secondary dominant chord built on the same root: V7/II:



^{b}III°7 has an alternate resolution to V7/5th in the bass:



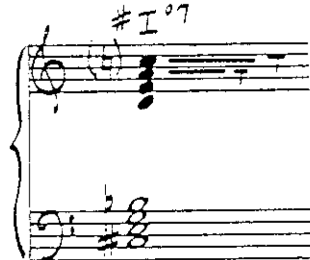
^{b}VI°7 has an alternate resolution to I/5th in the bass:



The auxilary diminished chords do not have alternative resolutions.

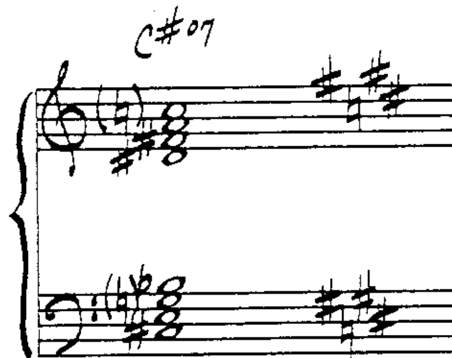
AVAILABLE TENSIONS - DIMINISHED SEVENTH CHORDS

As was pointed out in previous topics, the tension numbering system to 13 does not work for diminished chords since there is a potential tension above each of the chord tones in the extended structures of diminished seventh chords:

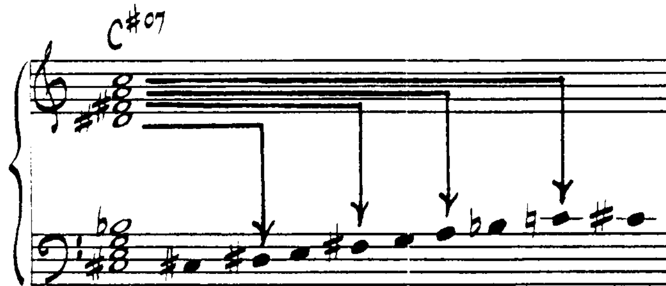


Therefore, the possible tensions in the extended structures for diminished chords are not numbered, but simply identified as Tension if available (a major ninth above a chord tone).

Tensions for diminished seventh chords can be characterized as either diatonic for a diatonic situation or, non-diatonic for a non-diatonic situation. If an extended structure is created with all the tensions available, the resulting diminished chord can not be diatonic to any key. The available tensions will not fit into any valid key signature:

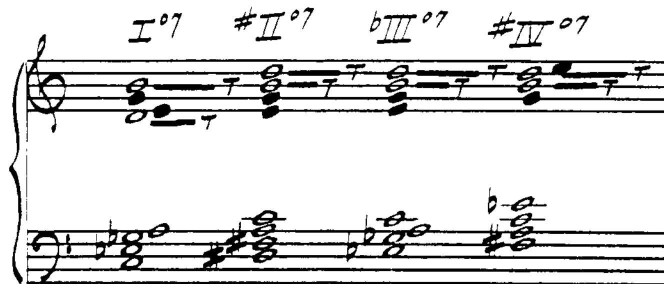


If the above chord's tensions are displaced an octave lower between each chord tone, a scale is created which is known as a SYMMETRIC DIMINISHED SCALE. This scale is composed of alternating whole steps and half steps:



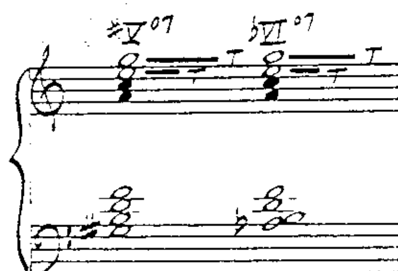
Hence, the above diminished seventh and its available tensions would be found in a non-diatonic situation. If the target for any diminished seventh chord is diatonic, the available tensions must be diatonically oriented. Those resulting pitches a major ninth above a chord tone are labeled as "**T**" (for available **T**ension).

The available tensions for I°7, #II°7, bIII°7, and #IV°7 in the key of C major are:

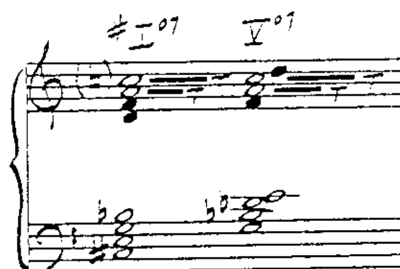


(Filled in note heads represent pitches which are diatonic, but a minor 9th above a chord tone.) Since all the above diminished seventh chords contain the same enharmonic chord tones, the potential tensions generated from the extended structures are identical.

The available tensions for #V°7 and bVI°7 (which contain the same enharmonic chord tones) in the key of C major are:



The available tensions for #I°7 and V°7 in the key of C major are:



CHORD SCALES - DIMINISHED SEVENTH CHORDS

We have already seen that the **symmetric diminished scale** is appropriate for use when a diminished seventh chord is not functioning in a diatonic situation:



In this scale all non-chord tones are available tensions, and as is the case with all diminished seventh chords, the numbering system to 13 does not work. The tensions are labeled as "T" without an associated number.

Diminished seventh chords which have diatonic resolutions, however, should imply this diatonic orientation with the use of diatonic non-chord tones. The resulting chord scales contain chord tones, tensions, and avoid notes:

I°7



#I°7



#II°7



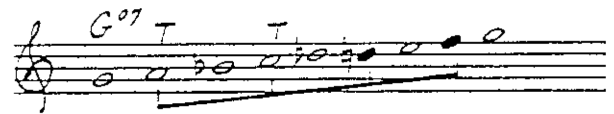
bIII°7



#IV°7



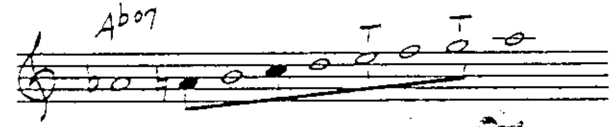
V°7



#V°7

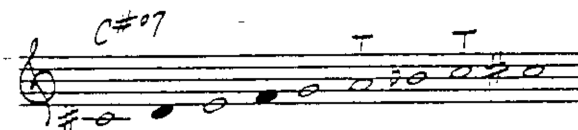


bVI°7



Unlike previous chord scales, the above diminished scales appear to have no names. However, a comparison with secondary dominant chords reveals identical chord scales for diminished and dominant chords.

#I°7 is expected to resolve to II-7 in many cases:

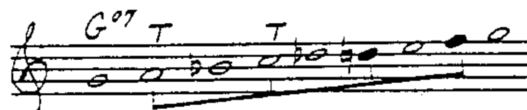


V7(b9)/II has a similar function:

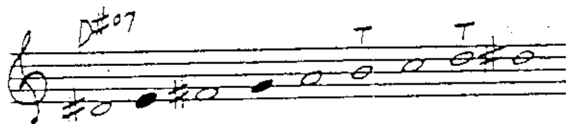


The chord scale for **#I°7** can be identified as the same scale as **V7(b9)/II** starting on the root of the diminished chord. The conditional avoid note situation occurring for the dominant chord does not occur for the diminished chord since the third of the diminished chord <u>must</u> be used.

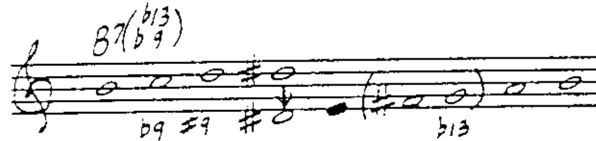
Since **V°7** contains the same chord tones as #I°7, it uses the same scale as **V7(b9)/II**.



#II°7 is expected to resolve to III-7:



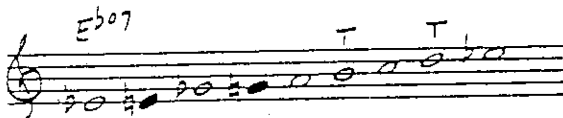
V7(b9)/III has a similar function:



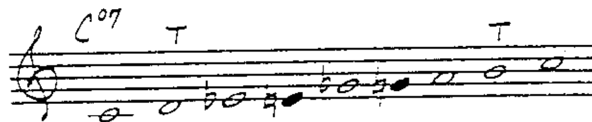
The chord scale for #II°7 can be identified as the same scale as **V7(b9)/III** starting on the root of the diminished chord. As in #I°7, there are two avoid notes.

Since **bIII°7** and **I°7** contain the same chord tones as #II°7, their chord scales can be identified as the same scale as **V7(b9)/III**. Each starts on the respective diminished chord's root and contains two avoid notes:

bIII°7

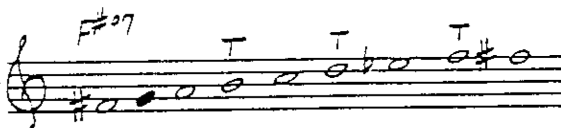


I°7

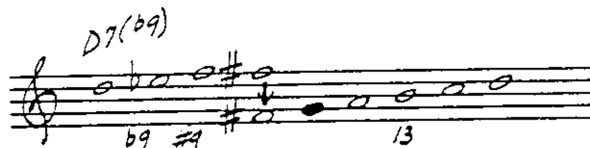


#IV°7 also shares the same chord tones as the above three diminished seventh chords and may therefore share the same chord scale. However,

#IV°7 is expected to resolve to V7:



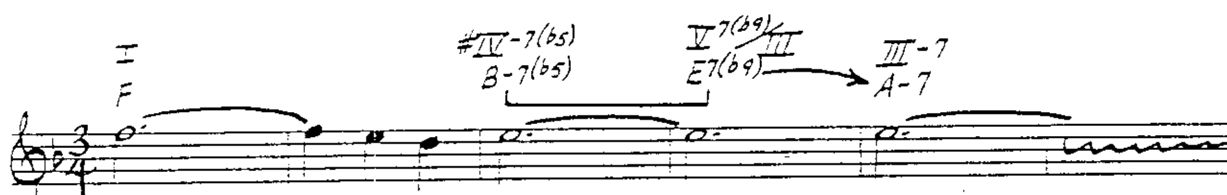
V7(b9)/V has a similar function:



In this case, **#IV°7** may use the same scale as either **V7(b9)/III** or **V7(b9)/V**, starting on the root of the diminished chord.

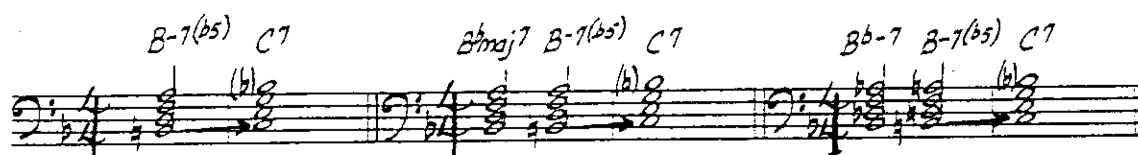
#IV-7(♭5)

#IV-7(♭5) is a chord functionally related to the previous passing and approach diminished seventh chords. It is also commonly found as the related II-7(♭5) of V7/III:

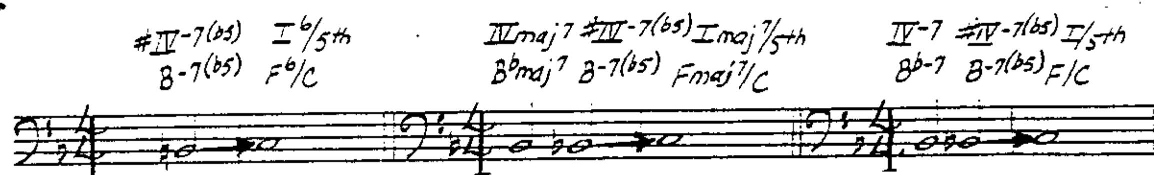


Its structure contains a ♭5 since that pitch is the tonic of the key. It can also be built as a diminished triad with a minor seventh. This type of seventh chord structure has traditionally been called "half diminished" (occasionally abbreviated as ø). There are rare instances in contemporary music when a -7(♭5) chord truly functions as a half diminished chord; #IV-7(♭5) may function in this fashion.

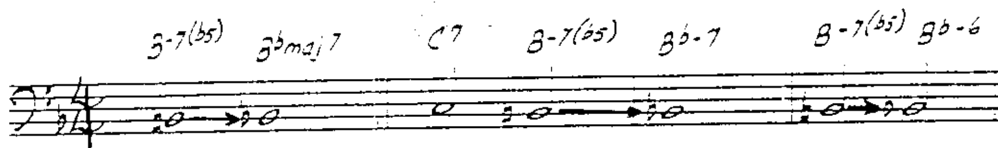
#IV-7(♭5) is found as an approach chord to V7 or as a passing chord to V7 from IV or IV-:



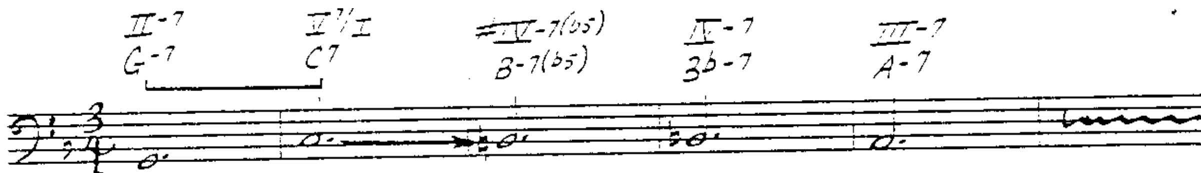
As with the alternate resolution possibilities of the diminished seventh chords, an alternate resolution to the above pattern is to the tonic I chord with its 5th in the bass:



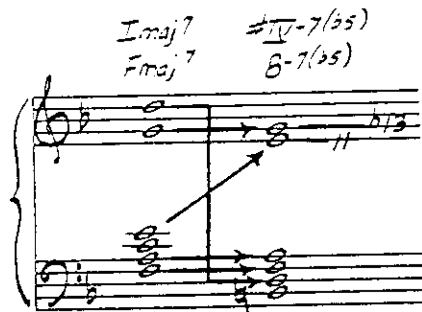
♯IV-7(♭5) is also found as an approach chord to IV or IV- or as a passing chord to IV or IV- from V7:



In the above example, the V7 chord can be seen deceptively resolving to ♯IV-7(♭5). The expected resolution for V7 is down a perfect fifth to I, but, like all dominant chords, V7 may resolve deceptively down a half step (as substitute dominant root motion demonstrates) to ♯IV-7(♭5):



This most often occurs as a means of delaying the cadence to tonic. An examination of the available tensions for ♯IV-7(♭5) and comparing its available pitches to those available on the I chord shows that common melodic possibilities exist.

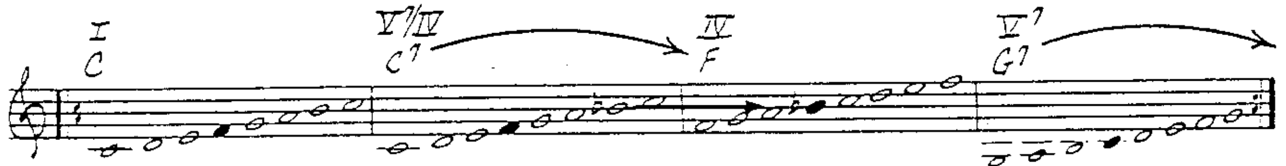


As is the case with most -7(♭5) chords (and all those seen so far), the available tensions for ♯IV-7(♭5) are 11 and ♭13.

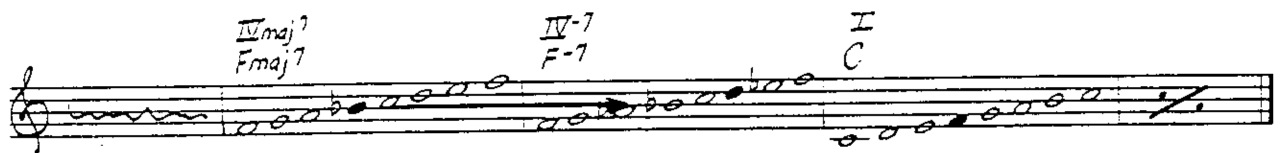
CHORD SCALES – OTHER MAJOR KEY CHORDS

Though the diatonic IV chord usually uses a Lydian chord scale, there are two instances in which an Ionian scale is more appropriate.

1) If the **IV** chord is **preceded** by its dominant (either **V7/IV** or **subV7/IV**), the listener prefers to hear a **IV Ionian** chord scale.

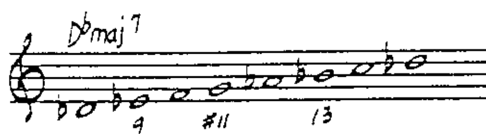


2) If the intent is to have the listener expect the **IV** chord to progress to **IV–**, the listener prefers to hear a **IV Ionian** chord scale.

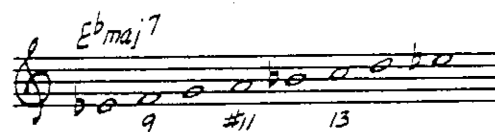


As a general rule, the above IV chord and the I chord are the only major key chords which use an Ionian chord scale. **All** other **major chords** in major key use **Lydian:**

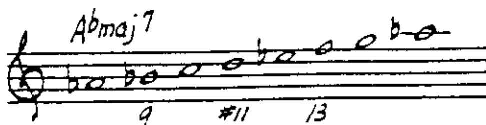
bIImaj7



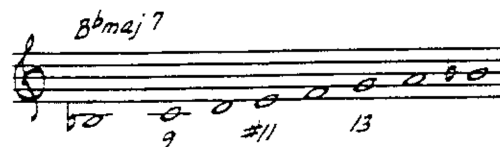
bIIImaj7



bVImaj7



bVIImaj7

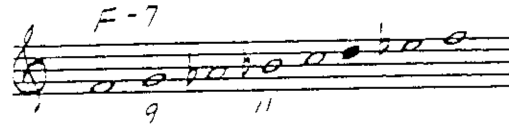


Other modal interchange chords borrowed from the parallel minor keys use the following chord scales:

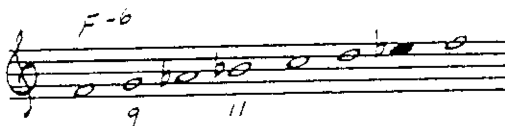
I-7 Dorian



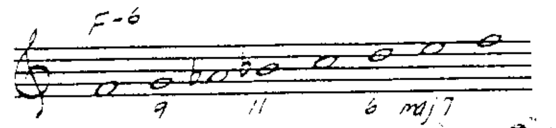
IV-7 Dorian



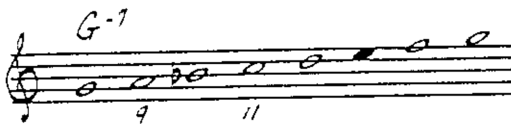
IV-6 either **Dorian** or **Melodic minor**



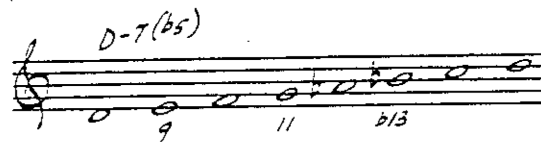
IV-(maj7) Melodic minor



V-7 Dorian

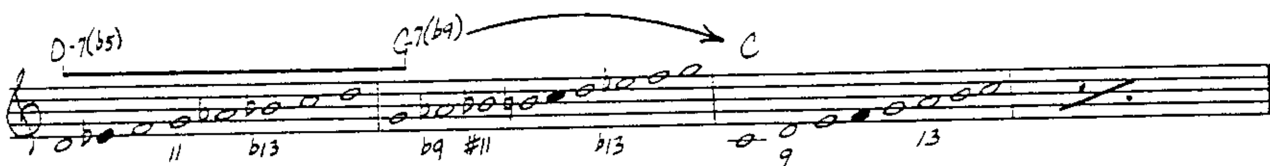


II-7(b5) Locrian natural 9



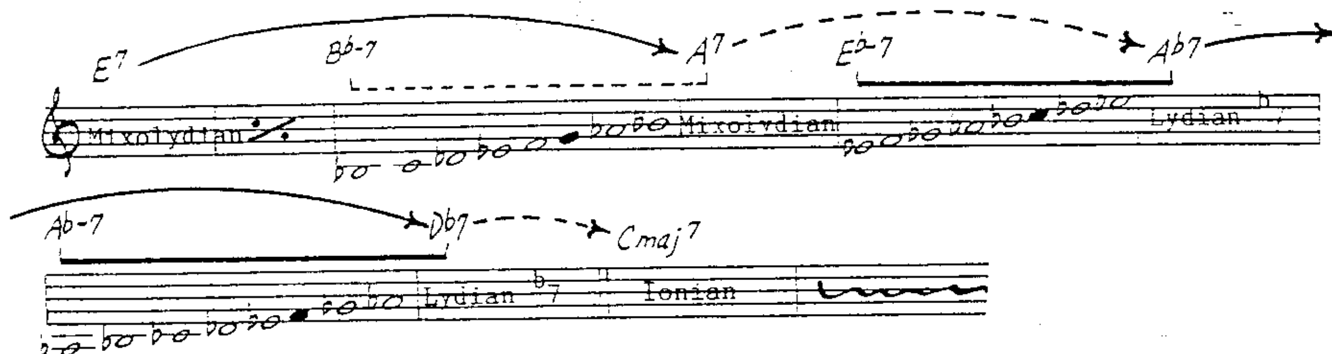
II-7(b5) Locrian,
V7(b9) Mixolydian b9, #9, b13

[This is a more common use of II-7(b5)]

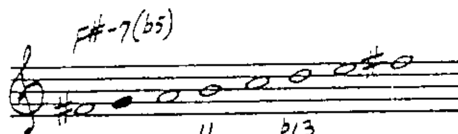


The above scales are appropriate when the modal interchange chord occurs in a major key.

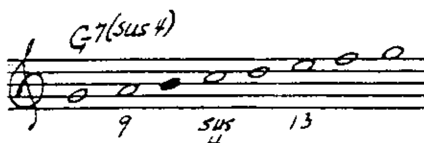
II-7 chords which appear because of their ——— or - - - - relationship use a **Dorian** scale:



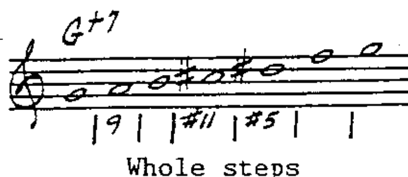
#IV-7(b5), like almost all minor seventh (b5) chords, uses a **Locrian** chord scale:



Dominant 7th sus4 chords use **mixolydian** chord scales but the 4th degree is available and the 3rd degree is avoided:



Dominant seventh chords which have an indicated **#5** use a **Wholetone** scale (each pitch is a whole step above the previous pitch):

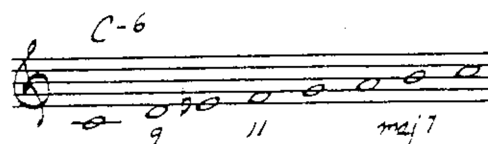


CHORD SCALES – MINOR KEYS

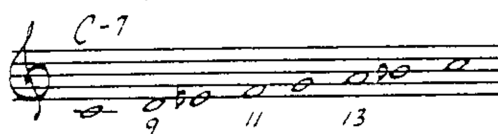
Due to the different configurations of the tonic minor key scales, more options are generated for the chord scales for diatonic minor key chords. However, **DIATONIC CHORDS IN MINOR KEYS USE DIATONIC CHORD SCALES**. The criteria for avoid notes remain the same as in major keys (with the exception of I-7 Dorian).

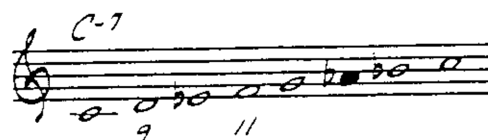
The I-**6** chord uses either a **Dorian** chord scale with the 7th degree avoided **or** a **Melodic minor** chord scale:



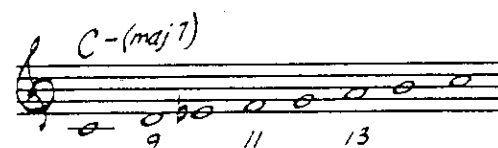


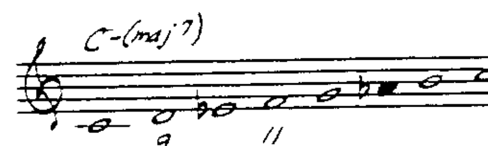
The **I-7** chord uses either a **Dorian** chord scale **or** an **Aeolian** chord scale. Unlike the avoided 6th degree for a II-7 Dorian scale, Dorian minor does allow for the use of tension 13:



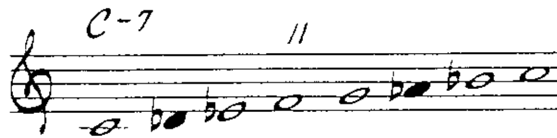


The I-**(maj7)** chord uses either a **Melodic minor** chord scale (ascending version) or, less often, a Harmonic minor chord scale:





It should be noted that though uncommon, it is occasionally possible to find a Phrygian tonic minor chord scale.



All other diatonic chords from minor tonalities have chord scales based on the different tonic scales of those minor keys. Any non-chord tone a half step above a chord tone remains an avoid note. A review of the many minor key chords and the minor keys they are found in will demonstrate the freedoms available in the choice of an appropriate chord scale for any diatonic chord.

All dominant chords similar in function to those found in major key harmony (secondary dominants, substitute dominants, extended dominants, extended substitute dominants, etc.) have chord scales which meet necessary criteria for their construction: diatonic orientation = diatonic non-chord tones; expected resolutions of down a perfect fifth = some form of Mixolydian chord scale; expected resolutions of any root motion other then down a perfect fifth = Lydian $^{b}7$. Basically, if the root of a chord is diatonic, think diatonic for chord scale construction; if the root of a chord is non-diatonic, the construction of the chord scale needs a logical justification.

CHORD SCALES - BLUES

The chord scales common to blues harmonies are constructed using the chord tones and pitches from the blues scale.

The I7 chord in blues uses a **Mixolydian #9** chord scale:



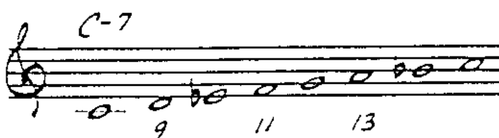
In addition, it is possible to use diatonic pitches from the major scale as a basis for the chord scale:

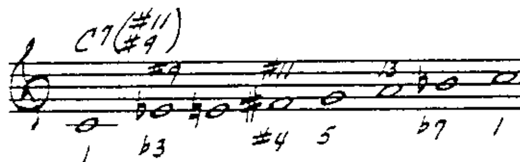
I7 (Mixolydian):



Other blues chord scales can be derived by using diatonic pitches from other parallel tonalities and other pitches associated with blues (e.g. #4):

I-7 (from minor key) **Dorian** : **I7 Lydian b7, #9**:

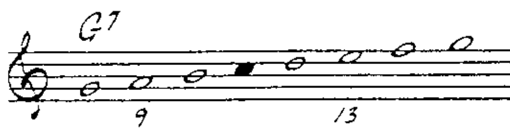


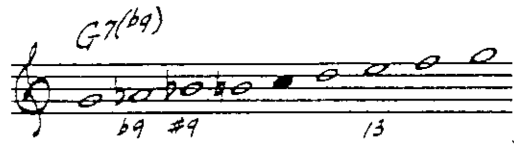


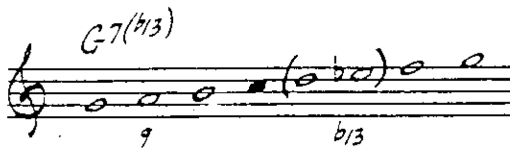
The **IV7** chord in blues uses a **Mixolydian** chord scale:

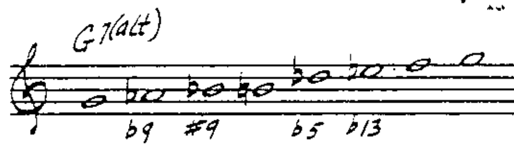


The **V7** chord (borrowed from major key harmonies) is either a **Mixolydian** scale, or a **Mixolydian with some alterations, or** an **altered** chord scale:

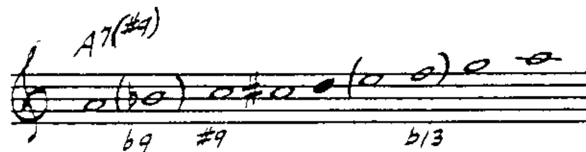








Other chords found in blues progressions are usually borrowed from major or minor key harmonies and therefore use their normal chord scales. V7/II, however, often takes a Mixolydian b9, #9, b13 chord scale.



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SUMMARY OF CHORD SCALE CONSTRUCTION CONSIDERATIONS

(The following generalizations should be considered suggestions and not absolutes.)

HARMONIC AVOID NOTE CRITERIA:

Any note appearing in a chord scale which is a half step above a chord tone should be avoided harmonically, except ♭9 and ♭13 are available on dominant chords.

The 6th degree of the Dorian scale should be avoided except in a tonic Dorian minor context.

Either the 5th or the ♭13th of a dominant chord should be avoided if the other pitch is used.

CHORD SCALE CRITERIA:

Diatonic chords take diatonic chord scales, with the exception of IV when it is preceded by its dominant or expected to progress to IV-.

Any dominant chord with an expected resolution down a perfect fifth uses some form of Mixolydian or altered chord scale.

Any dominant chord not expected to resolve down a perfect fifth takes a Lydian ♭7 chord scale.

If a dominant chord's chord scale is some form of Mixolydian, the scale may have added altered tensions.

Any dominant chord wih a non-diatonic root uses Lydian ♭7; any major chord non-diatonically rooted uses a Lydian scale.

The only alteration possible to Lydian ♭7 is ♯9, if the expected chord of resolution is major.

♭9 and ♯9 may coexist in a Mixolydian scale except on a I chord in blues or on a Lydian ♭7, ♯9 scale.

For minor 7 chords, it's usually a good practice to use Dorian when in doubt!

Most minor seven (b5) chords use Locrian.

All suspended fourth chords use Mixolydian.

A wholetone scale is used for dominant chords with #5.

Most diminished seventh chords use a chord scale identical to one of the secondary dominant (b9) scales.

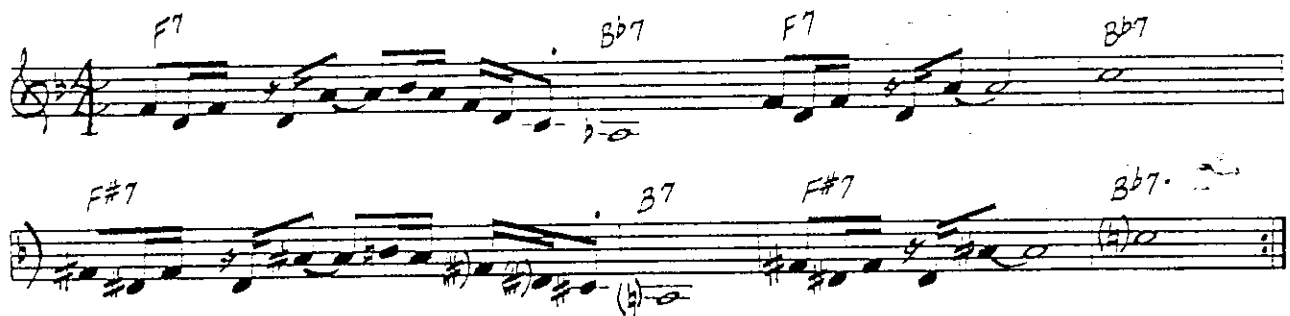
MODULATION

Modulation is the movement of melodies and/or harmonies from one key into another. In order for a modulation to occur, the listener must shift from the original tonic reference to a new tonic reference.

The above 16 measure tune contains a modulation from F major into Bb major and returns to F major. Notice that typical of this type modulation, the phrase in B^b may stand alone:

However, B^b major is the **SECONDARY** key and F major is the **PRIMARY** key. The relationship of the secondary key to the primary key is shown with a small arrow in the direction of the modulation and the intervalic distance to the new key.

When modulations occur within tunes, it is common practice to use accidentals as opposed to changing key signatures. Generally, the less accidentals necessary in a modulation, the more closely the keys are related and the more subtle the modulation. The previous modulation required only the use of one additional flat to accomplish the modulation from F major (one flat) into B^b major (two flats). Modulations to distantly related keys are more obvious.



The above modulation (up a half step) requires accidentals for all the melody pitches. This type modulation, though sometimes found in tunes, is also a common device used by arrangers. The use of modulations upward tends to keep the music "forward moving". Therefore, most modulations are perceived as occuring in an upward direction. The above example is shown modulating from F major into F# major. It is easier however to notate and read the example modulating from F major into G^b major:



Although written enharmonically in G^b, the modulation <u>sounds</u> like tonic motion upward from F to F#. G^b requires 5 flats, but the listener perceives the modulation as going to F# (all pitches raised a half step from F).

DIRECT MODULATION

Modulations may occur directly from any diatonic chord. The most common form of **DIRECT** modulation is from the I chord, since the I chord establishes a point of tonal finality.

When the harmony modulates, the melody may or may not modulate. For example the melody may repeat while the chord progression modulates. As seen above, however, when the melody modulates the harmonies <u>must</u> modulate.

The above example shows a modulation from the diatonic II-7 chord directly to the new key a minor 3rd higher. <u>DIRECT MODULATIONS FROM DIATONIC CHORDS OTHER THAN I OR V USUALLY INVOLVE STEPWISE ROOT MOTION.</u>

PIVOT CHORD MODULATIONS

Chords which function in both the original/primary key and in the new/secondary key are **PIVOT CHORDS**. Their dual functions are indicated by two analysis symbols; one in parentheses showing initial function, and one justifying the function in the new key:

As is the case for all chords requiring parenthetical analysis, the choice of chord scale for a pivot chord is based on the chord's initial function.

The usual practice of determining chord scales by initial function is done to present the listener with a deceptive, but acceptable surprise. Therefore, a pivot chord is heard and analyzed first in terms of the preceding key, and then in terms of the new key to be established.

DOMINANT CHORD MODULATIONS

Modulations from dominant chords, like other pivot chord modulations, may exhibit dual function (deceptive resolution). Also, dominant chords which resolve deceptively will be analyzed in terms of both old and new keys. All dominant chords have an expectation for resolution. However, the different resolutions demonstrated by different types of dominant chords allow for the following root motion patterns to new keys:

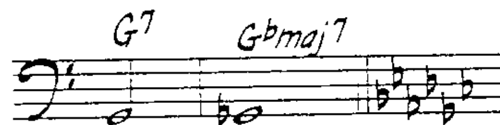
DOWN A PERFECT 5TH:

V7 to Imaj7



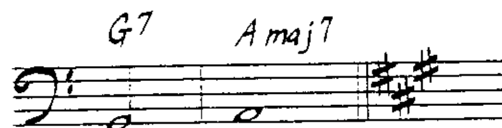
DOWN A HALF STEP:

subV7 to Imaj7



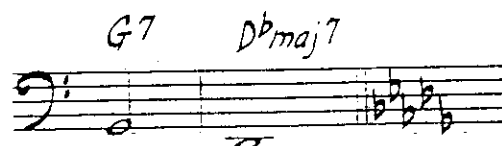
UP A WHOLE STEP:

♭VII7 to Imaj7



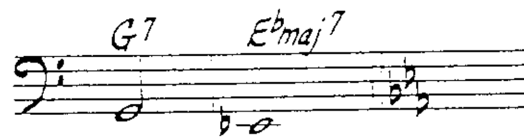
DOWN A TRITONE:

V7 to ♭IImaj7



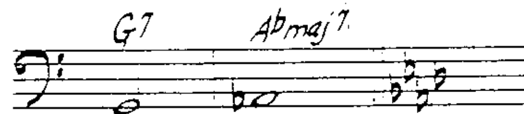
DOWN A MAJOR THIRD:

V7 to **♭IIImaj7**



UP A HALF STEP:

V7 to **♭VImaj7**



Additionally, the expected diatonic chord of resolution for a secondary dominant may deceptively change quality and become a chord functioning in the new key:

V7/II to new **Imaj7**



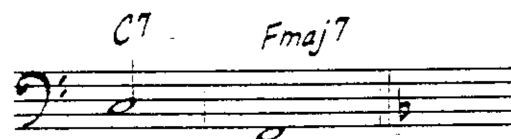
(D–7 expected)

V7/III to new **Imaj7**



(E–7 expected)

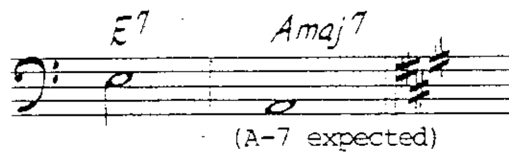
V7/IV to new **Imaj7**
(This may not sound like a modulation since IV is a diatonic maj7 chord)



V7/V to new **Imaj7**



V7/VI to new **Imaj7**



Therefore, **ANY DOMINANT CHORD MAY RESOLVE DECEPTIVELY INTO A NEW KEY.** Though the other above patterns may occur, the root motion from a dominant seventh will usually be either down a perfect fifth or down a half step or up a step.

Extended dominant and extended substitute dominant motion (with or without the related II-7 chords) may eventually result in a modulation.

The same example may be used to demonstrate modulation to a different key by adding one or more dominant chords:

The previous transition from the original key into the new key can be seen as a modulation, because all the dominant activity makes it difficult for the listener to hear the original tonic reference. This **transitional** type modulation, though not very common in tunes, is an occasionally used arranging device.